My word

What is training?

David Olson

Postdoctoral fellows in the biomedical sciences have been greatly affected by recent changes in the research enterprise. Many current fellows, like me, entered graduate school in the mid to late 1980s, when academic and industrial research in biological subjects was rapidly expanding. The expansion is markedly slower now, and competition for research jobs and funding has significantly increased. Many of us who have almost completed our training feel that the training we've had is too one-dimensional. There is a wide-spread feeling that changes are needed.

One of the biggest changes we've seen is the degree to which prospective principal investigators must 'hit the ground running'. In the past, it was possible to learn many of the skills necessary for success while on the job. Now it seems that one must develop professional skills much earlier to compete effectively for positions and funding. And yet, the training that we receive is almost entirely focused on experimental research, and not at all on how to ensure that we get the opportunity to put this training into practice.

Another important change is in the way postdoctoral fellowships are used. Instead of a unique opportunity to learn new skills, many fellows get stuck in the same field, trying hard to add papers to their publication list. Post-graduate training also takes much longer; many of us have spent 10 years or more in low paying 'training positions' with few or no benefits. It's not surprising that people in this position want to discuss their chances of getting research funding, how to improve their professional skills, the careers available outside the traditional positions in academia and industry, and the future of postgraduate education.

Last year, here at UCSF, a group of postdoctoral fellows asked the faculty for help in addressing these issues. We wanted to create new opportunities for postdoctoral fellows to learn from senior scientists, and in particular offer established scientists a chance to provide advice on professional conduct and career development. Although fellowships are designed to be training positions, the amount of mentoring or training a fellow receives varies tremendously from lab to lab. Our goal was to create a supplemental, and more formal, mentoring process, to provide postdoctoral fellows with more information about the practical aspects of being a scientist, and to increase awareness of the global issues affecting the future of science.

In fact, we aimed to redefine the training of postdoctoral fellows, expanding it from an apprenticeship in how to perform and interpret experiments to include all aspects of being a scientist. We called our idea The Practice of Science Course, and in it we invited UCSF faculty and others from local industry to speak about different aspects of the life of a research professional. In six seminars we discussed how to write a proposal, how to hire people, how to honor a budget, ethics in science, the scientist as an inventor and the importance of patents, publication strategies, and how to be attractive to public and private employers (or, how to get a job). Although we knew that the interest in these topics was tremendous, we were surprised by the level of enthusiasm we saw. We expected 50 fellows per seminar, and planned the post-seminar pizza and beer for 75. In fact, average attendance approached 200, including a generous sprinkling of interested faculty who came to offer their own views on the topic under discussion.

As an organizer of this first experiment, I am proud of its success. A formal survey indicated that four out of every five fellows who came said they would attend a similar class in the future. I was particularly encouraged by the number of fellows who stayed for 30 minutes or more after the pizza had run out. The guest speakers were often completely surrounded by fellows asking questions, in exactly the type of informal interaction we had hoped for.

We propose to continue and expand the program, learning from our experience. For example, we found that younger scientists were most helpful in discussing the more practical topics, such as lab management, budgets, grant writing, and publishing. More senior scientists could better communicate the 'big picture', giving the audience a sense of perspective on our profession. We therefore propose to divide the program into two parts, one being a series of workshops on the practical issues of how to succeed as an independent scientist, led mostly by junior faculty, the other a series of lectures by eminent scientists focusing on topics such as changes in major granting and regulatory agencies, the role of basic research in biotechnology, pharmaceutical and clinical research, and the future of graduate education.

This program is not a substitute for traditional mentoring, but a supplement to it. It is intended to be a focal point for exploring the future of professional training for scientists, which we believe should include professional development and leadership as an integral part of post-graduate training. We are currently seeking funding for it. The idea seems so natural and obvious to us that we expect the university, eventually, to incorporate it formally into future training programs. And we hope that it will serve as a model for courses emphasizing the professional development of young scientists at other institutions.

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